Original article

Fear and avoidance behaviour in chronic low back pain

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Abstract

Low back pain is a commonest musculoskeletal symptom among individuals and is considered as a major health problem in modern society. Psychosocial factors are significant as biomedical factors in the onset, maintenance and treatment of chronic low back pain (CLBP). The most common psychological symptoms include depression, emotional distress, and illness behavior. Some studies have evaluated the fear and avoidance behavior in CLBP using a validated fear avoidance belief questionnaire (FABQ) but no studies are reported in Indian population. Hence the purpose of this study is to analyze the presence of fear and avoidance beliefs among patients with chronic low back pain using FABQ. The FABQ (Waddell, 1993) consists of two subscales, namely physical activity subscale (FABQ-PA,score less than or equal to 15 is normal) and work subscale (FABQ-W, score less than or equal to 34 is normal). Simple random sampling method was used. A sample of thirty chronic low back pain subjects, who are receiving physiotherapy treatment with the ability to read and understand English, was included and FABQ was administered once during the study. Subjects with neurological deficits, rheumatoid arthritis and sero-negative arthopathies were excluded. The questionnaire revealed mean physical activity subscale score is 22.27±7.041 (males=18.64±9.983, females=24.37±3.435) and mean work subscale is 42.8±12.888 (males=36.91±17.450, females=46.21±8.059). Age was found to have significant correlation with physical activity (p=0.002) and work subscales (p=0.006). The FABQ-PA has significant correlation with the FABQ-W (p=0.000).The study concludes the presence of fear and avoidance behavior in females is greater than in males of both subscales in chronic low back pain patients.

Key words: Chronic low back pain and Fear avoidance belief questionnaire

Introduction

Low back pain is a common musculoskeletal symptom among individuals and is considered as a major health problem in modern society. Almost 90% of all patients with acute low back pain get better quite rapidly, regardless of the therapy, remaining 10% are at risk of developing chronic low back pain and disability and this accounts for more than 90% of social costs for back incapacity(World report on disability, WHO). This is one of the causes for long term absenteeism from work, increased work loss, sick certification, compensation, long term disability, need for social support and a functional restoration programs[1]. In India, approximately 35% people suffer from chronic back pain. The main causes of CLBP is in dysfunction of intervetebral joints, facet joints, ligaments and muscles and various biomechanical factors[2]. Psychological factors such as fear, anxiety, depression, and a sense of helplessness often contribute to the development and maintenance of

chronic pain and associated disability[3]. Psychosocial factors are significant as biomedical factors in the onset, maintenance and treatment of chronic low back pain (CLBP).Pain is an unpleasant sensation and is closely associated with fear. Variety of concepts including pain related fear, fear for movement and kinesophobia are commonly used. In order to receive a successful outcome, the component 'fear of pain' needs to be addressed[4]. The central concept of fear of pain and fear avoidance model was developed[5]. In order to explain how muscular pain develop chronic pain syndromes, 'Confrontation' leads to the reduction of fear over time and 'avoidance' leads to the maintenance or exacerbation of fear, possibly generating a phobic state.

FABQ is a validated clinical outcome measure intend in measuring high fear, avoidance beliefs and consequent avoidance of physical activity in CLBP [6, 7]. Higher FABQ scores indicate presence of psychological factors as like fear and avoidance beliefs[6]. The questionnaire constitutes of two subscales namely work and the Physical activity, which facilitates the presence of the patient's beliefs about work and physical activity affecting their current low back pain[6, 7] .Work subscale is considered as the stronger predictor of disability and work loss[8].Active intervention in the form of cognitive behavioral therapy, graded physical activity and educating on coping strategies are required with elevated FABQ scores[7].

The FABQ questionnaire has been widely used in all western countries in evaluating chronic musculoskeletal conditions such as back pain, neck pain and shoulder pain. It's generally a misconception that painful musculoskeletal dysfunctions are purely mechanical in nature rather involvement of psychosocial factors. It's the negligence in identifying the psychological component involved in chronic pain conditions. Many studies have evaluated the fear and avoidance behavior in CLBP using fear avoidance belief questionnaire[9] but no studies are reported in Indian population. Therefore, the purpose of this study is to analyze the presence of fear and avoidance beliefs among patients with chronic low back pain using FABQ.

Methodology

Subjects

A total of 30 patients with the medical diagnosis of chronic low back pain with duration of pain greater than 3 months and ability to read and understand English were included as study subjects for this observational study. Simple random sampling method was used. Prior explanation of the procedure of study was explained and an informed consent was obtained signifying voluntary participation. The study was conducted in the outpatient department of Sri Ramachandra Hospital, Chennai. Subjects with neurological deficits, rheumatoid arthritis and sero-negative arthopathies were excluded.

Procedure and Outcome

The validated FABQ questionnaire consists of 16 items, with each item scored from 0-6. It is a self report scale based on patients beliefs about how pain affects their physical activity and work. The FABQ Physical activity (FABQ-P) has four items assesses attitudes and beliefs related to general physical activities (range 0–24, score less than or equal to 14 is normal) and the FABQ Work (FABQ-W) has seven items assesses attitudes and beliefs related to activities involved in occupation (range 0–42, score

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less than or equal to 34 is normal). Each item is scored based on subject's version as completely disagree, unsure and completely agree. In both subscales, a low score indicates low fear-avoidance beliefs. Scoring greater than 14 in physical activity subscale and greater scores than 34 in work subscale are considered to have high psychological involvement of fear and avoidance. The subject's demographic details of age, gender, educational status and duration of symptoms were recorded. The questionnaires were administered, reviewed and the results calculated using statistical tests.

Statistical analyses

The statistical analysis was performed using the SPSS statistical package (version 16.0). The frequency of distribution, mean, standard deviation and inferential statistics (two-tailed test) was used.The Pearson's correlation coefficient was used to examine the correlation among FABQ subscales,age and duration of symptoms.Results were considered significant at $P<0.01$. Fear and avoidance in patients having chronic low back pain was analyzed The data analysis was done using SPSS and statistical significance level was set.

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RESULTS

In this observational study, thirty subjects participated of which 11 were males and 19 were females. The mean age is 48.27± 11.85 and the mean duration of symptoms in months is 28.7± 29.503(Table 1). The mean age of females are 50.84± 10.210 and males are 43.82±13.637. The mean of duration of symptoms in females are 28.26±34.301 and males are 29.45± 20.136.

Table 1.

Demographics of subjects

Parameters	N	Mean	Standard deviation
Age	30	48.27	11.88
Gender	Male(11)	43.82	13.64
	Female(19)	50.84	10.21
Duration of symptoms(months)	30	28.70	28.50

Table 2.

Measures of FABQ subscales

Parameter		N	Mean	Standard deviation	Standard error
FABQ-PA	Female	19	24.37	3.44	0.79
	Male	11	18.64	9.98	3.01
FABQ-PA	Female	19	46.21	8.06	1.85
	Male	11	36.91	17.45	5.26

Table 1

This research basically is intended to observe the presence of fear and avoidance beliefs related to physical activity and its influence on occupation. The mean of physical activity category scores in fear and avoidance belief is 22.27±7.04. The mean of work category is 42.8±12.89.It was noted that there are higher scores of both subscales in chronic low back pain subjects (Table 2).The mean score of physical activity category in females are 24.37±3.435 and males is 18.64±9.983.The mean of work category in females are 46.21±8.059 and males is 36.91±17.450.

Table 3.

FABQ-PA subscale scoring in genders

FABQ-PA	Female	Male	Total
Scores>14 – count	19	07	26
Scores>14-percentage	100%	63.6%	86.7%
Scores<14- count	0	4	4
Scores<14-percentage	0%	36.4%	13.3%

Table 4.

FABQ-W subscale scoring in genders

FABQ-W	Female	Male	Total
Scores>18 – count	19	09	28
Scores>18-percentage	100%	81.8%	93.3%
Scores<18- count	0	02	02
Scores<18-percentage	0%	18.2%	6.7%

In the physical activity category the total number of subjects with score greater than 14 is 26, 19 females and 7 males (Table 3).The subjects having fewer score less than 14 are 4 males. This shows that out of 30 subjects, 26 of them will respond to cognitive behavioral therapy (86.7%). In FABQ-W subscale (Table 4), the total number of subjects having a score greater than 18 is 28 ,19 females and 9 males. The numbers of participants having a score of less than 18 are 2 males denoting that they will respond to manipulative treatments (6.7%).

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Table 5.

FABQ-W subscale scoring in genders

FABQ-W	Female	Male	Total
Scores>34 - count	18	08	26
Scores>34-percentage	94.7%	72.7%	86.7%
Scores<34- count	01	03	04
Scores<34-percentage	5.3%	27.3%	13.3%

Table 5 depicts FABQ-W scores greater than 34 is 26, 18 females and 8 males. Subjects with score of less than 34 are 4, 3 males and 1 female. Hence, out of the 30 participants, 26 of them had severe disability (86.7%). On correlating the age, duration of symptoms and the scores of physical activity and work subscales of FABQ, age was found to have significant correlation with physical activity (p=0.002) and work subscale (p=0.006).The physical activity subscale exhibited much significant correlation than work subscale (p=0.000). Duration of symptoms does not show a significant correlation with age, physical activity and work subscales of questionnaire.

Discussion

Musculoskeletal pain and disability are not purely influenced by mechanical factors but also by psychosocial factors. The term 'avoidance' means a postponement or getting averted because of previous experiences leading to avoidance learning. Hence pain (acute or chronic) will inhibit an individual to perform physical activity as those activities increase pain. The relationship between fear and pain was first described by Lethem in 1983. The fear-avoidance model of exaggerated pain perception in which fear and pain were both presented and associated with behavior through avoidance learning. The purpose of this study was to determine the presence of fear and avoidance beliefs, its variation in genders and comparing the involvement of two subscales in chronic low back pain subjects. Besides that co relational analysis of variables was analyzed.

Fear and avoidance belief questionnaire commonly used to assess the symptoms among acute low back pain patients to assess their return to work. The results showed 86.7% participants having severe disability, females counting for 94.7% among them. Comparing the means of physical activity scores (22.27±7.041) work subscales (42.8±12.89) were higher, decipting greater disability in chronic low pain subjects. This result goes in accordance to Klenerman,1995 stating that work subscale is considered as the stronger predictor of disability and work loss. Among participants, 93.3% shall not respond to manipulative treatment techniques, which is based on work subscale scores. A clinical prediction rule[10] for identifying individuals with acute low back pain who can benefit from spinal manipulation has five variables. One among the variable is FABQ work subscale less than 19 can benefit from a manipulative intervention. This clearly reflects the importance of the questionnaire not only as diagnostic tool but also a prognostic tool. Twenty six subjects (86.7%) are expected to respond to

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cognitive behavioral therapy. There is a significant improvement in CLBP following weekly sessions of cognitive behavioral therapy[11]. This finding further being supported by stating that FABQ scores are the most important cognitive factor for the development of chronic disability in CLBP and its work subscale is an useful screening tool for identification of sickness absenteeism[7].

This questionnaire has shown to be of good use to assess the treatment strategies that can be used among chronic low back patients. The statistical analysis shows a high correlation of age with that of physical activity (p=0.002) and work (0.006) subscales of the questionnaire. This is supported by a recent study that showed good correlation between subscales[12].The physical activity subscale exhibited much significant correlation than work subscale (p=0.000), which is in accordance to the study by Fritz JM, 2001 stating that FABQ-P appeared to show significant correlation with FABQ-W (*P*=0.000). Findings of this study suggest that screening for fear-avoidance beliefs may be useful for identification of patients at risk of psychosocial problems as well as pain intensity and physical impairment.

The limitations include a small sample size and difficulty in recruiting subjects as FABQ is available in English. Even though metropolitan cities has good literacy rate, most subjects will have difficulty in using English questionnaire. Future scope involves translation and validation of FABQ in local language, analyzing effects of biopsychosocial model and multidisciplinary team work in CLBP. The study concludes the presence of fear and avoidance behavior in females is greater than in males of both subscales in chronic low back pain patients.

References

1. Hazard RG.Chronic low back pain and disability: The efficacy of functional restoration. Bull Hosp Joint Diseases. 1996;55,213-216.
2. Graves JF, Pollock ML, Carpenter DM, Leggett SH, Jones A, MacMillan M, Fulton M. Quantitative assessment of full range of motion isometric lumbar extension strength.Spine, 1990;15,289–294.
3. Samwel HJ, Ever AW, Crul BJ, Kraaimaat FW.The role of helplessness, fear of pain, and passive pain-coping in chronic pain patients. Clinical journal of Pain, 2006;22,245–251.
4. Lundberg M, Grimby-Ekman A, Verbunt J, Simmonds MJ. Pain-related fear: a critical review of the related measures. Pain Research and treatment, 2011:494196,1-26.
5. Lethem J, Slade PD, Troup JD, Bentley G. Outline of a fear-avoidance model of exaggerated pain perception-I. Behavior Research and Therapy.1983;21, 401–408.
6. Waddell G, Newton M, Henderson I, Somerville D, Main CJ.A Fear-Avoidance Beliefs Questionnaire (FABQ) and the role of fear-avoidance beliefs in chronic low back pain and disability. Pain. 1993;52, 57–68.
7. Fritz M Julie,Steven Z. Georgeb , Anthony Delitto.The role of fear-avoidance beliefs in acute low back pain: relationships with current and future disability and work status.Pain.2001;94,07-15.

8. Klenerman L, Slade PD, Stanley IM, Pennie B. The prediction of chronicity in patients with an acute attack of low back pain in a general practice setting. Spine.1995;20,478–484.
9. Steve R Woby,Paul Watson.Neil K Roach, Martin Urmston.Are changes in fear-avoidance beliefs, catastrophizing, and appraisals of control, predictive of changes in chronic low back pain and disability**?** European Journal of Pain .2004; 8(3):201-10.
10. Flynn T, Fritz J, Whitman J .A clinical prediction rule for classifying patients with low back pain who demonstrate short –term improvement with spinal manipulation.Spine. 2002;27,2835-2843.
11. Nagarajan M, Nair MR.Importance of fear-avoidance behavior in chronic non-specific low back pain.Journal of back and musculoskeletal rehabilitation. 2010;23(2),87-95.
12. Eun Jung Chung,Young-Goo Hur,Byoung-Hee Lee. A study of the relationship among fear-avoidance beliefs, pain and disability index in patients with low back pain.Journal of exercise rehabilitation. 2013;9(6),532-535.

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